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IN THREE SECTIONS

Section I

IN THIS ISSUE

An Approach to the Problem of Cost Finding in the Marketing of Rubber Footwear, James F. Cullen 929
Development of Standards for the Control of Selling Activities, Howard C. Greer 943

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EDITORIAL DEPARTMENT NOTE

In this issue of our Bulletin we feel that we are presenting two excellent papers dealing with the very important problem of distribution. Competition in the past has resulted in very highly developed efficiency in the field of production, but not until recently has much attention been given to the possibility of applying some of the same principles of efficiency to the field of distribution. It reflects a natural trait of human nature for us to follow the line of least resistance. Therefore, in attempting to reduce our costs so as to be able to meet increasingly competitive selling prices we have naturally first centered our attentions on those cost factors which most obviously could be reduced. We have been hunting for and shooting at that type of game so persistently in the production end of business that further hunting for such items there will probably cease to net results commensurate in value with the costs necessary to obtain them. However, in the field of distribution the hunting is excellent. Here is found a greater variety of game and, for the most part, such cost factors are less controllable than in the field of production. This field presents the greatest immediate problems for the cost accountant. These two papers in this issue of our Bulletin show that some serious constructive thought has been given to this subject.

Mr. James F. Cullen, the author of the first paper, is a graduate of the Bentley School of Accounting & Finance of Boston, Massachusetts. After a brief experience in the banking field wth the State Street Trust Company of Boston, he became associated with the Hood Rubber Company of Watertown, Massachusetts, where he has been located for the past ten years. He has served in various capacities in the Accounting Department of this company and at the present time occupies the position of Manager of Budgets, to which he was transferred from that of Assistant to the Chief Accountant two years ago. Mr. Cullen is a member of the Boston Chapter, N. A. C. A. Sales Cost Accounting Committee of the Manufacturers' Research Association and Industrial Statisticians group of the Associated Industries of Massachusetts. Mr. Cullen's paper was awarded first prize in Essay Contest No. 1, held by the Boston Chapter of the N. A. C. A.

Mr. Howard C. Greer, the author of the second paper, has become well known to many of our members through his previous contributions to our Bulletins and through the excellent addresses he has delivered before many of our chapters. He has had broad experience in analysis and research and the application of modern accounting principles in the field of distribution. Mr. Greer is a graduate of Northwestern University and is a C. P. A. of Illinois and Ohio. After seven years in industry and public accounting work he went into the teaching field. For some time he was head of the Accounting Department of the Ohio State University and directed the research in that department. Later he was appointed to his present position as Director of Accounting for the Institute of American Meat Packers and in September, 1929, he was appointed Professor of Research in Accounting at the University of Chicago. Mr. Greer is the author of several books and numerous magazine articles on various phases of accounting and management problems. This paper was delivered before the New York Chapter.

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NATIONAL ASSOCIATION OF
COST ACCOUNTANTS

MARCH 15, 1932

AN APPROACH TO THE PROBLEM OF COST FINDING IN THE MARKETING OF RUBBER FOOTWEAR

By James F. Cullen, Manager of Budgets, Hood Rubber Co., Watertown, Mass.

SCIENTIFIC Cost Accounting has been one of the foremost contributing factors in the development of economical factory operation.

Until recent times, however, the accountant has paid relatively little attention to the development of cost accounting in the field of marketing. It is now evident, however, that in this field we are going through a period of evolution comparable to that which took place in Production Cost Accounting which has resulted in the highly developed technique that we have there today.

The costs incurred beyond the production point very often call for the disbursement of money equalling, if not exceeding, the cost of production. Moreover, the intangible nature of marketing expense and the opportunity for waste make it a duty of the profession to develop research and studies along these lines.

The principles and objectives in the costing of marketing activities are basically the same as in the costing of manufacturing activities. We must remember, however, that we are dealing with a problem of a somewhat different nature and, therefore, our approach to the problem, our technique in the analysis and reporting of cost data must be carefully and wisely engineered in order to be effective and that we may make a definite contribution to the control of these costs which have mounted so high in the past decade or two.

To make a simple illustration of the difference in the nature of the two fields let us compare the work of a salesman with that of a factory operator. In their fields they may both be classified as "Direct Labor." We know that for the factory worker to produce 50 pairs of a certain kind of an overshoe he has to go through definite motions requiring a certain length of time for which he is paid a definite rate per piece or per hour. The cost of his efforts is directly measurable. But who can say that it shall require a certain length of time, or number of calls, and a certain definite

amount of promotion or other sales effort to obtain from one or more customers the order for the 50 pairs of shoes produced by the factory worker. The salesman's efforts are individual with himself and even vary according to the varying natures of his customers.

A very strong argument in favor of correctly determining marketing costs lies in the fact that many, if not most concerns, do not know the cost of—

A given commodity, sold to
A particular dealer.

The price to the dealer for the commodity is based on the average marketing costs of all commodities sold to all types of dealers. The commodities with the low marketing costs and the dealers requiring a minimum of service are made to pay the burden of commodities requiring excessive marketing costs and the dealers requiring a maximum of service. This practice is not only economically wrong in that so far as possible the purchaser should pay only a fair price for what he gets, but it leaves the way open for "sniping" competition to "pick off" sales of improperly priced commodities, and customers who do not need the service the manufacturer is prepared to give and consequently expects them to pay for.

The customer should not pay for marketing wastes but, on the other hand, he should pay for the service he requires or demands on the particular commodities that he purchases.

The recent case of the Ladoga Canning Company vs. the American Can Company brings out very clearly the necessity for being able to prove that there has been no discrimination in price in favor of any customer and that the price to any account is justified in view of the cost of handling the account.

Although it may be truthfully said that selling prices are determined by competition this is no argument against the finding of selling costs.

As we probe into this subject many interesting and valuable analyses suggest themselves, such as—

(1) What is the cost and value to the company of "leaders" in the line which are sold at a loss?

(2) How should development or sales cost of introducing a new product in the line be considered in pricing or costing?

(3) What is a "marginal" account if any, and how should such an account be treated in pricing and costing?

The mere cost of an article or service, by itself, may have very little meaning. We must have a standard of comparison by which to measure it. We may have a great many standards, such as—

(1) Previous performance.
(2) Standards based on labor, material, and burden studies.
(3) Cost of similar commodities or service.
(4) Comparison with selling price, etc.

All of these comparisons serve a purpose—but we must know what we are trying to measure—what the objective in view is—in order that we may choose the right yardstick. Above all, we must keep in mind the practical value of the work that we are doing.

In brief, therefore, we may say that the development of any system of cost finding makes it necessary to decide—

(1) What facts we want to know.
(2) How we are to determine these facts.
(3) What measurement we shall apply to these facts, when determined, so as to decide the efficiency of the operation.

Some time ago the management of the Blank Rubber Company, in line with many other concerns, turned its attention to the rising tide of Marketing Costs. In the trade there had grown up over the years a policy of trade discount allowances, primarily based upon the anticipated annual volume of purchases to be made by a customer. Actually this policy had grown into one whereby the best trader received the most discount and there was little or no consideration taken of the demands made by a customer for service in the handling of his account.

It was decided that the company, in order to correct the evils of such a situation, should be armed with the necessary facts that would lead it in the right direction for the removal of the causes. The first facts that it was decided should be learned were—

1—The relationship between the Trade Discount allowed and the service demanded by various accounts and types of accounts.
2—The relationship between various type of accounts of the handling or servicing costs of the accounts.

With these facts properly determined, the company could then proceed to prepare an equitable Trade Discount policy that would not only be fair to themselves but would also place all accounts on a fair, even basis without discrimination or favoritism. At the same time there would be disclosed cost data on operating expenses which

would provide information for the setting of standards and the better control of costs.

The first step in the process of obtaining the facts was made by analyzing the number of accounts in various classes according to volume and comparing the number of accounts in each class with the volume of sales obtained from the class. This is a common statistical study and disclosed the usual situation, namely, that there were a great many accounts giving a relatively low volume of sales and a few accounts from which were received a large proportion of business.

A step further than this was made, however, to determine what it was costing in the way of operating expenses for each class of accounts. The result of these studies are shown graphically on the attached chart. (Exhibit A).

In view of the fact that the operating expense figures shown in this graph represent the average for each class, it is necessary to point out the wide variances between individual accounts within each class.

The following tabulation shows the range into which the ratio of expense to Gross Sales may fall in accounts of various sizes. It is made to illustrate two points:

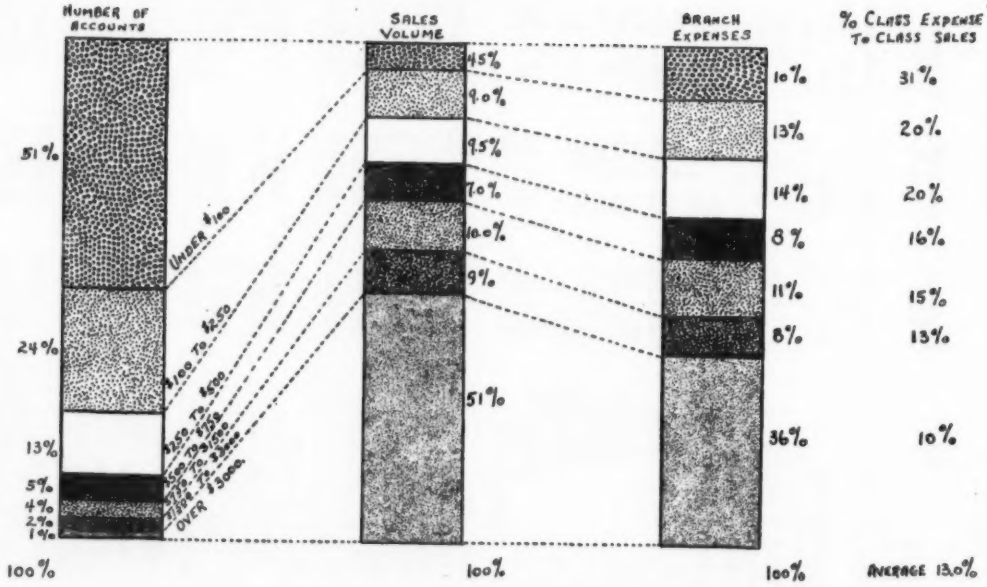
1—That the average expense rate to sales in each class is not necessarily a significant factor.

2—That there is no direct correlation between sales and expense. That is to say, there is no geometric reduction in expense ratio as the size of the account increases. This is due to the fact that each account is individual and the factors which determine the cost vary considerably between accounts.

Size of Account	*Expense Range in Percent*
$ 100	15.0 to 33.0
500	10.0 " 20.0
1,000	11.0 " 16.0
2,000	7.0 " 13.0
3,000	6.0 " 17.0
5,000	5.4 " 12.5
15,000	7.0 " 11.0

In determining each range, exceptional high and low extremes have been omitted so as to obtain the most constant range.

EXHIBIT A
ALL BRANCH SUMMARY-1930



EXHIBIT

Branch No. 1 Footwear Distribution
Net Volume

Name	*Customer No. 1*	*Customer No. 2*	*Customer No. 3*	*Customer No. 4*
Location				
Type of Store	Dept. Store	Dept. Store	Dept. Store	Dept. Store
	5-12½		5-10	5-12½
Discount Rate	8-8	Same	8-8	10
Salesman	No. 9	No. 9	No. 9	No. 9
Billed Volume	19,538	35,515	17,044	18,411
No. of Invoices	442	719	286	278
Average Value	44	49	60	67
Invoices Under $10	96- 431	277- 827	82- 230	127- 366
10-25	53- 929	124- 2,160	29- 529	26- 418
25-50	74- 2,739	125- 4,750	24- 864	28- 996
50-100	79- 5,304	64- 4,474	54- 3,686	24- 1,808
100-250	46- 6,991	53- 7,607	41- 6,563	23- 3,769
250-500	16- 5,035	23- 7,753	8- 2,640	22- 8,047
500-750	1- 530	9- 5,442	6- 3,533	2- 1,414
750-1,500	.. ...	3- 4,056	.. ....	4- 4,385
1,500-3,000	.. ...	.. ....	.. ....	.. ....
Over-3,000	.. ...	.. ....	.. ....	.. ....
R. M's	77- 2,422	41- 1,554	42- 1,058	22- 2,789
No. Sales Calls	41	184	82	115
SUMMARY:				
List Sales	$21,422.68	$40,437.38	$22,683.09	$20,007.35
Seconds & Job Discounts	1,454.06	4,277.07	5,700.79	1,651.67
Allowances	7.27	24.56	27.75	10.97
Discounts	2,927.91	5,075.12	1,279.20	3,444.91
Net Sales	17,033.44	31,060.63	15,675.35	14,899.80
Cost Mdse.	15,669.95	28,730.20	13,636.66	14,330.49
Balance	$1,363.49	$2,330.43	$2,038.69	$569.31
DIRECT CHARGES:				
Freight	$104.00	$285.15	$89.60	$98.40
Cash Discount	136.71	279.08	16.10	132.34
Stock Shortage Loss	1.22	.....	3.25	19.20
Total	$241.93	$564.23	$108.95	$249.94
Balance	$1,121.56	$1,766.20	$1,929.74	$319.37
Salesmen's Cost	$405.28	$1,064.05	$537.36	$593.67
Other Selling { Superv.	61.20	160.67	81.14	89.64
Other	16.62	43.63	22.03	24.34
Total Selling	$483.10	$1,268.35	$640.53	$707.65
Packing & Shipping	$273.31	$487.07	$243.89	$221.56
Billing Acctg. Credits	374.46	637.63	287.28	268.84
Warehousing, Br. Oper. & Admin.	370.61	699.57	392.42	346.13
Total Selling & Operating	$1,501.48	$3,092.62	$1,564.12	$1,544.18
Balance	$377.92	$1,326.42	$365.62	$1,224.81
Salesmen's Cost { Calls	$230.01	$1,032.24	$460.02	$645.15
% Gross Sales	580.55	1,095.85	614.71	542.20
Average	405.28	1,064.05	537.36	593.67

"B"

Cost Analysis—Calendar Year 1930
Over $10,000

Customer No. 5	*Customer No. 6*	*Customer No. 7*	*Customer No. 8*	*Total*	
Chain Shoes	Chain Shoes	Shoe Chain	Dept. Store		
	8-8	8-8	5-12½		
8-8	12½	8-8 or 8-5	8-8		
House	House	House	House		
69,303	68,438	60,000	20,476	318,725	
287	573	530	179	3,294	
241	119	113	114		
13- 64	113- 460	24- 72	34- 88		
14- 255	87- 1,442	33- 629	9- 169		
34- 1,196	92- 3,319	68- 2,738	16- 587		
51- 3,838	86- 6,109	164-11,491	28- 2,007		
60-10,291	85-12,922	181-27,496	22- 3,804		
42-15,132	51-18,740	40-13,472	16- 5,346		
13- 8,131	6- 3,717	6- 3,426	6- 3,609		
10- 9,162	6- 6,866	1- 915	4- 3,294		
6-13,080	3- 8,013	....	1- 1,637		
2- 9,413	2- 7,311	....	....		
42- 1,259	42- 463	13- 247	43- 66		
$69,799.83	$68,472.69	$62,420.98	$21,377.47	$326,621.47	100%
706.40	45.27	2,300.40	872.40	17,008.06	5.20
20.99	14.76	127.68	31.84	265.82	.08
10,613.57	13,447.26	11,467.34	2,877.78	51,133.09	15.64
58,458.87	54,965.40	48,525.56	17,595.45	258,214.50	79.08
53,689.04	53,134.81	47,003.32	15,976.73	242,171.20	74.17
4,769.83	1,830.59	1,522.24	1,618.72	16,043.30	4.91
581.75	530.73	342.13 (Est.)	210.00	2,241.76	.69
888.60	701.92	178.73	174.16	2,507.64	.76
32.51	....	5.55	....	61.73	.02
1,502.86	1,232.65	526.41	384.16	4,811.13	1.47
3,266.97	597.94	995.83	1,234.56	11,232.17	3.44
....	....	....	....	2,600.36	.80
608.65	597.08	544.31	186.41	2,329.10	.71
166.12	162.96	148.56	50.88	635.14	.19
774.77	760.04	692.87	237.29	5,564.60	1.70
602.23	663.64	606.90	207.22	3,305.82	1.01
528.18	693.01	636.35	216.43	3,642.18	1.11
1,207.54	1,184.58	1,079.88	369.83	5,650.56	1.73
3,112.72	3,304.27	3,016.00	1,030.77	18,163.16	5.55
154.25	2,703.33	2,020.17	203.79	6,930.99	2.12
....	....	....	....	2,367.42	.73
....	....	....	....	2,833.31	.87
....	....	....	....	2,600.36	.80

The deception and possible danger of using average costs is well brought out by this example which shows that costs on individual accounts within a class may vary widely from the average for the class.

In back of these figures of course, there was spent a considerable amount of time and study analyzing the factors which affect the cost of handling an account, and in determining the costs. The methods pursued were as follows:

The company was found to have some 30,000 accounts in 15 branches. It was obviously impossible and impractical to make a complete analysis of each account. The method of "Sampling" was, therefore, used to obtain a sufficient number of accounts to represent a fair cross-section of all types of customers. First of all, certain branches were selected which typified the average branch having both rural and metropolitan areas to service. Within each branch there were selected ten different accounts in each of eight different volume classes. Care was taken to select accounts in various sections of branch territories and in different types of businesses so as to obtain as representative a picture as possible.

Each account was analyzed in detail, item by item and all income and expense determined so as to arrive at a final net profit for each account.

To bring out the variances between accounts, the detail on each group of accounts at each branch was shown in schedule form, a sample of which is shown on Exhibit "B".

The methods used in arriving at the figures shown were as follows:

The invoices and cash settlement vouchers on each account were examined and the Gross Sales, Discounts and Allowances determined, thus arriving at Net Sales.

Against Net Sales was charged the Cost of Merchandise Sold and the Gross Balance carried down. This cost of merchandise represents the standard factory cost of the goods sold to which has been added those administrative and other expenses incurred up to the point of landing the goods in the branch. In other words, it is a built-up cost comparable to the price which the branch would have to pay for the goods were it an independent jobbing house.

In order to determine the contribution on each account to the branch fixed expenses it was then necessary to determine what expenses were incurred which would not have been incurred had the

account not been sold. In other words what were the direct "Out of Pocket" expenses. These were determined to be—

Freight to Customer and return
Cash Discount
Bad Debts
Stock Shortage Loss (Mdse. Loss in Transit to Customer)
Collection Expense

and these expenses were allocated directly to each account.

After charging these expenses against each account, the Gross Balance at this point is carried down.

This Balance represents the contribution by each account to the Branch Overhead or fixed charges.

An account that shows *Black* at this point is a profitable account, that is, we are better off with it than without it, under our present set up. *Each account should, however, contribute in the correct proportion commensurate with the service required by it.*

Therefore the remaining operating expenses of the branch were grouped and charged against each account in the following manner:

SELLING EXPENSES:

A—Salesmen's Cost

The largest individual item of expense is that of Salesmen's expense. The attached schedule (Exhibit C) analyzes the cost of each salesman at one branch for the year.

Salaries have been shown separately because they reflect the

EXHIBIT "C"

SALESMEN'S COST

BRANCH NO. 1

Salesman	*Gross Sales*	*Salaries*	*% Gross Sales*	*Travel*	*% Gross Sales*	*Total %*	*No. Calls*	*Cost Per Call*
No. 1	$61,836	5,000	8.10	$2,221	3.61	11.71	584	$15.45*
No. 2	76,947	2,600	3.38	815	1.06	4.44	2,120	1.61
No. 3	18,322	1,800	9.85	Paid out of Sal.		9.85	....	....
No. 4	48,318	2,700	5.14	657	1.37	6.51	1,261	2.66
No. 5	67,995	2,500	3.68	900	1.33	5.01	1,352	2.51
No. 6	65,494	2,400	3.68	1,361	2.08	5.76	1,116	3.37
No. 7	66,511	2,700	4.06	1,778	2.68	6.74	1,151	3.89
No. 8	896	51	5.70	....	...	5.70	Special	
No. 9	198,055	5,267	2.65	114	.06	2.71	960	5.61
No. 10	21,611	1,650	7.64	709	3.28	11.92	Territory	Transferred
No. 11	3,126	197	6.32	....	...	6.32	Territory	Transferred
	629,111	26,865	4.26	8,555	1.36	5.62		
House	400,178							
Grand Total	1,029,289							

* Includes cost of both Salesman No. 1 and No. 3

salesman's compensation for sales obtained. The average for the branch is 4.26%. Eliminating those salesmen who did not work a full year and salesman No. 1 who was substituting on the territory, we find a range from 2.63% on No. 9 to 5.14% on No. 4. These variations in salary rates occur because of—

1—The necessity of paying a living wage in territories of less than average volume which are being built up.

2—The high dollar salary, but low cost ratio of city salesmen, because of their large department store business.

3—The variations in individual salaries due to length of service of salesman.

Traveling Expenses represent the amount reimbursed the salesman for expenses on the road. The average for the branch is 1.36%, the variation being from .06% on Territory No. 9 to 3.61% on Territory No. 1.

Proration to Individual Accounts:

There are several viewpoints to be considered in prorating salesmen's expenses to individual accounts.

1—That the salesman's territory cost (Salary and Expenses) is apportionable on a percentage of Gross Sales basis. This is on the theory that this cost is expended in return for whatever volume is obtained regardless of time spent with individual accounts—that the salesman's time is his own—the total result obtained being what counts.

2—That the number of calls made on each account (representing a measure of the time spent with an account) should be found and the cost of the account then determined from this. This does not consider the length of time spent in an individual call, nor the cost in view of distance traveled to call on the account. For example—in Territory No. 6 with a volume of $65,000 in 1929 we find that $41,000 or approximately 63% is obtained in his home town—Dover, N. H., and seven other towns within 50 to 60 miles radius.

Dover, N. H.	$ 3,585
Portsmouth, N. H.	3,287
Exeter, N. H.	1,053
Rochester, N. H.	1,300
Derry, N. H.	1,113

Nashua, N. H.	4,300
Manchester, N. H.	10,769
Concord, N. H.	15,740
	41,147

We find the salesman calling 25 to 30 times a year on customers in Dover, and Manchester and only 6 or 7 times a year in Montpelier, Vermont—150 miles away. If all calls are valued the same the figures are distorted.

It was decided—

1—That calls are not an accurate measure of salesman's time spent.

2—That it is not practical to get an accurate analysis of salesman's time and travel expense per account.

3—That we pay our salesmen—not in consideration of the time spent with individual accounts, but in proportion to their ability in building Goodwill, keeping their customers happy and as a result maintaining and increasing the total volume of business.

The ways and means of doing this are mainly up to him, whether he has to call on an account once or a dozen times—provided, of course, he stays within his expense ratio. If a territory has excessive traveling costs, it is probably not because a salesman is making too many calls, but because his territory is too large or hard to travel. Then any savings would come about, not necessarily by reducing the number of calls (his salary continuing on), but by rearranging the territory, or finding other ways and means of obtaining the customer—contact that would reduce the expense without hurting volume.

The only value of calls per customer, to my mind, is in managing the salesman, to make sure that all accounts are receiving the attention they need.

For the purpose of this report in order to weight the charges for salesman's expense by both factors, that is number of calls and cost on percentage of Gross Sales, the cost was figured both ways and an average taken. The detail is given at the foot of the analysis of each account. The above explanation is given that these facts may be kept in mind when studying the figures.

Supervision and Other Selling Expense:

In charging the above the theory was used that these expenses

will follow the salesman's expenses very closely. The ratio of supervision and other selling costs to Salesmen's Costs was determined and this ratio used in prorating the expense. By doing this the account that has the high salesmen's costs will also have a high supervision cost.

House Accounts were charged on the basis of the relation of Supervision and other Selling Costs Total to total sales.

Supervision	*Br.* 1	*Br.* 2	*Br.* 3	*Br.* 4	*Br.* 5
House					
Ratio Exp. to Sales.....	.96%	.872%	1.16%	.57%	.68%
Salesmen					
Ratio Supv. Exp. to Salesmen's Exp.	17.35%	15.10%	18.00%	9.25%	10.00%
Other Selling Expense:					
House					
Ratio Exp. to Sales.....	.240%	.238%	Very small inc.	.44%	.16%
Salesmen					
Ratio Supv. Exp. to Salesmen's Exp.	4.45%	4.10%	in Supv.	10.00%	5.00%

Packing and Shipping Expenses:

There is a certain amount of this expense incident to all orders regardless of size, and in addition, there is the expense which varies according to the size of the order. Very often it costs more to fill a small order than a large one, because the small one might call for a few pairs which have to be picked, and packed or wrapped while the large order might be for regular run cases which have to be merely pulled out of stock intact, labelled and shipped. At the same time a small order coming at a time when shippers are not rushed can be filled at no extra cost because the men have plenty of time. It would not be practical to time study the filling of an order and charge the expense accordingly because this would presuppose we are working on a 100% efficient basis, whereas we are not and each account has to stand its share of lost time in the off-season. It is the general policy to carry a crew of men that will take care of somewhat less than the peak load and these men are carried over through the dull season so as to have an experienced group, so very necessary when the rush starts. (The Rubber Footwear business is a highly seasonal one, reaching its peak in the winter snow season).

It was arbitrarily decided how much of this expense was vari-

able according to volume and how much was incidental to each order, and the costs prorated in this way.

Comparative Costs—Packing & Shipping Expense

	Br. 1	*Br.* 2	*Br.* 3	*Br.* 4	*Br.* 5
Value Shipments	$948,807	$1,032,436	$587,890	$948,298	$3,136,614
Cost	13,883	15,050	12,222	12,949	30,346
Cost Ratio	1.46%	1.45%	2.08%	1.36%	.97%
No. of Shipments	26,000	28,400	18,188	26,700	85,000
Cost per Shipment ..	53¢	53¢	67¢	48¢	35¢
Proration Factors					
Per $ Sale	.77%	.76%	1.39%	.86%	.29%
Per Shipment	.25¢	25¢	22¢	16.2¢	25¢

Billing, Accounting and Credits:

The line of reasoning outlined above in Packing & Shipping Expenses was used in prorating the Billing, Accounting & Credit expenses to the various accounts. It was considered, however, that these expenses are of a different nature, being more fixed per order than variable according to the size of the shipment.

The following shows the elements used in arriving at the proration of this expense:

Comparative Costs—Billing, Accounting & Credits

	Br. 1	*Br.* 2	*Br.* 3	*Br.* 4	*Br.* 5
Value Shipments	$948,807	$1,032,436	$587,890	$948,298	$3,136,614
Cost	22,095	22,367	24,812	19,073	113,309
Cost Ratio	2.30%	2.16%	4.22%	2.00%	3.62%
No. Shipments	26,000	28,400	18,188	26,700	85,000
Cost per Shipment ...	84¢	79¢	$1.36	72¢	$1.33
Proration Factors:					
Per $1 Sale	.68%	.51%	2.53%	.92%	1.58%
Per Shipment	60¢	60¢	54½¢	39¢	75¢

Warehousing, Branch Operating and Administrative:

This group of expenses covers what may be called "Rental" expenses including—

Rent
Light, Heat & Power
Depreciation
Storehouse Expense
Repairs
Insurance
Taxes
Leasehold Expense

These expenses are mainly incurred because of Stock Protection. It was concluded that they should be prorated on the basis of a percentage of Gross Sales. The more merchandise a customer buys the greater the stock necessary to service him, therefore, this expense will follow sales very closely.

Following are the comparative costs:

Rental Expenses

	Br. 1	*Br.* 2	*Br.* 3	*Br.* 4	*Br.* 5
Value Shipments	$948,807	$1,032,436	$587,890	$948,298	$3,136,614
Cost	20,266	17,814	20,060	17,645	53,636
Cost Ratio	2.13%	1.73%	3.42%	1.79%	1.71%

Summary of Results:

A study of this kind is sometimes referred to as a "view-point" cost study. That is to say it is made to determine the operating costs with a certain object in view. In this case it was to discover the costs of servicing accounts and relating this expense to trade discount allowances.

For the period under review the figures shown for each account analyzed represented a fair picture of the costs of handling each account for the purpose of comparing one account or class of account with another and also for the determination of equitable trade discount rates. It is not thought that a finished highly scientific job has been done, but as an answer to the questions involved it is believed to be adequate.

These analyses cannot be used to determine which accounts are unprofitable with a view to *eliminating* such accounts. Such an analysis would have to be made with that purpose in view and consideration taken of other factors not considered herein. These would be, in part—

1—The effect on branch fixed expenses which would not be eliminated by the elimination of the account.
2—The effect on factory production costs of the loss of volume.
3—The elimination of accounts which although now unprofitable might have possibilities of future growth.

The figures brought out the fact, however, that there was a very wide difference in the cost of servicing each account, which resulted in either discrimination or favoritism among accounts or in the company not being compensated by some accounts for ex-

cessive expense incurred. Particularly was this true of the Department Store Accounts. It was also brought out definitely that volume alone was not the only measure by which discount rates should be set.

In view of the fact that the rubber footwear trade is a very highly competitive one, it is extremely difficult for the company by itself to bring about a correction of the situation because of competitive practices. However, by a presentation of these facts before the Trade Association it is hoped that a gradual improvement of the situation will be made. In the meantime studies of this kind will be continued to provide more information for better control and knowledge of the facts.

DEVELOPMENT OF STANDARDS FOR THE CONTROL OF SELLING ACTIVITIES

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COST accounting in general has evolved through a stage in which the primary objective was the analysis of actual costs on a historical basis, to a stage in which the accountant's foremost responsibility is the development of cost information to be used in planning and controlling business activities. In the relatively new field of distribution costs, accountants have already run rather quickly through a period in which attention was given primarily to historical costs, and are now already venturing into the work of developing standards for the control of selling activities and the costs to which these activities give rise.

This is not to say that distribution cost accounting procedure in its historical aspects has been highly refined or brought into anything like permanent form. Much of the work done in the field must still be regarded as tentative and preliminary, and there will doubtless be years of study and experimentation before we can establish a basic procedure which will be generally accepted and utilized. It is not too early, however, to begin a discussion of the development and use of standards in this field, and we may properly give thought to the matter in which standards will be

set up and applied even while we are still testing and changing our theories as to sound methods of distribution, cost analysis and interpretation.

This paper deals with the control of selling activities and selling costs through the use of standards. The material is presented not as a final solution of the problem, but rather as a tentative hypotheses for trial and criticism. Consequently the examples used are illustrative and general, and not necessarily applicable to any particular case. They may be thought of as indicating certain possible uses of standards in the distribution field, and as suggesting one way in which such standards may be developed to take care of operating conditions and problems of a certain type.

The term "standards" is used here in a broad general sense and without reference to any particular system of standard cost accounting. There is no need here for special consideration of what standard costs are, or whether any particular accounting system is or is not strengthened by their use. It seems clear that standards of performance are needed in controlling and measuring practically all types of business activity, and that accountants differ chiefly on the question of whether or not standards shall be developed in accounting terms and applied through the operation of the accounting system.

Since this paper deals with an analytical rather than a bookkeeping procedure, the controversial point mentioned above is of no great importance to this particular discussion. Attention will be given to the use of standards in administering operations, rather than to the form of any accounts or entries to which they may be related.

Cost figures are utilized in two rather distinct ways: first, *for comparison of specific outlays with related incomes*—that is, *to determine profits;* second, *to compare actual outlays with expected outlays*—that is, *to determine efficiency.* The first of these uses is related to the broad general program of the concern as a profit seeking enterprise, and the second to the immediate performance of the various functions which go to make up its operations.

Without measures of profitableness we cannot tell whether activities justify themselves; without measures of efficiency, we cannot tell whether a given job has been done as well as it ought to have been done, or as well as we planned in advance that it

should be done. Both elements are inferentially present in almost all programs of cost work, but it is only in recent years that we have come to appreciate that profits are much more likely to be obtained if we plan each individual activity carefully in advance, and then hold those in charge of the work responsible for performance in line with the standards set.

The first efforts of accountants in this field were in the direction of developing what we may call "fixed" standards. Instead of using that term the accountant said that he was preparing a "budget". A plan for the use of a coordinated series of fixed standards was termed a system of budgetary control. In a comprehensive plan of this sort the operations of an entire enterprise are brought into one closely integrated program, expressed in terms of the financial result of every activity undertaken. Each operating element is estimated in advance—total sales, total production, total material, labor, and overhead cost, total cash receipts and expenditures, final profits, and ultimate balance sheet, all are planned in harmonious relationship and in line with the hopes of the management for the best possible results.

These schemes for coordinated control of the entire enterprise on a fixed plan basis have been of inestimable advantage to industry. Most concerns now consider them indispensable to sound management. In their practical operation, however, they have revealed one important limitation which, while not impairing their general value, has made them fall short of complete effectiveness from the standpoint of internal control. This deficiency is their lack of provision for fixing responsibility for individual variances from the predetermined budget which arise when several departments at once exceed or fall short of their expected performance.

For example, if the sales department does not produce the aggregate volume of business anticipated under the original budget, it is quite likely that the production department will be required to change its schedules. The change gives rise to a set of costs which are different from those which it was expected would be incurred under the original program. When the management seeks to analyze these differences, it becomes difficult, often impossible, to determine how much of any given variance has resulted from changes in the basic production schedule, and how much has resulted from simple failure of the production department to

measure up to the standard of effectiveness provided by the budget program.

This condition has led to the adoption of a second type of standard, designed not to replace, but to supplement the fixed standard which serves as the basis of the ordinary system of budgetary control. This second type of standard, which may be termed a "flexible" standard, is designed to measure the effectiveness with which any individual function is carried on, irrespective of the amount and the conditions of functional service made necessary by the company's operating program as a whole. The fixed budget is retained as an instrument for planning and organizing, and for judging results as a whole. The flexible standard is introduced as a means of measuring and controlling the activities of various departments within the enterprise in the light of their own accomplishments and without respect to the effect of influences outside their control.

An attempt is made in this paper to indicate how flexible standards may be developed and used in the control of selling activities.

If useful standards of the flexible type are to be developed, it must be borne in mind first that all costs are the results of specific activities; further, that any cost may usually be stated as the product of a *given quantity of functional service* times the *cost per unit* of such service. If costs can be broken down in such terms, it becomes possible to anticipate not merely what the aggregate of these costs will be for a given period of time under expected operating conditions, but also what these aggregate costs should be for any given quantity of functional service produced at standard efficiency.

In other words, the total probable cost of operating a given department may be figured not merely as an aggregate, but as the product of an expected quantity of functional service times an expected cost per unit of such service. If, then, the actual total is out of line with the original expectations, it can be discovered by analysis whether the variance is due to (a) differences in the quantity of service required, (b) differences in the cost per unit of service rendered, or (c) the two factors in combination.

An example from factory operations will illustrate the point. If the budget program calls for the output of 1,000,000 kwh. of electrical energy from the company's power plant at an expected

cost of 1 cent per kwh., the total power plant cost will be budgeted as $10,000. If the actual cost sustained during the budget period is $12,000, the fixed budget has been exceeded by 20 per cent. From the standpoint of control of the power plant operations, it is important to know whether the excess is due to greater requirements for electrical energy by the productive departments of the plant, or whether the power house has operated at a lower efficiency than was expected. The $12,000 aggregate cost, for example, may have resulted from the production of 1,200,000 kwh. of energy at 1 cent per kwh., or from the production of 800,000 kwh. at 1.5 cents per kwh., or from some other combination of factors.

A flexible budget would make an allowance to the power plant of a certain cost per kwh. at various levels, and its efficiency would be judged not from the aggregate amount spent, but from the unit cost achieved under the operating conditions imposed by the requirements of other plant departments. If we can adopt this point of view with respect to selling activities as well as manufacturing activities, we shall be on the way to developing flexible standards for the control and measurement of the work done by the distribution division of the business.

An illustration will be offered showing the application of this principle to an actual case. Before the illustrative material is examined, however, it should be helpful to consider again the several steps which must be taken to obtain the necessary information, work it up into usable form, and apply it to the case to be considered. These steps are as follows:

(1) All expenses of the business related to the distribution of its products must be segregated and reclassified by *functional* activity, instead of by object of expenditure. In other words, costs must be grouped in terms of the distribution activities which give rise to them, rather than according to the type of material or service for which the money is directly spent.

(2) Some unit of measure must be selected for each functional activity, as a basis for measuring the amount of service required and the unit cost of such service.

(3) From the total functional, or "activity", cost, divided by

the number of units of functional service represented, a unit cost figure for each function must be developed.

(4) The probable amount of each functional service to be required under the budgetary program must be determined, and from the probable (ie., the "standard") unit cost of such service at that level of operations, the total expected cost of that service must be calculated.

(5) When actual cost figures (by functions) are finally available, they should be accompanied by a statement of the number of units of functional service actually required, from which it will then be possible to determine how much of the variance between expected and actual costs is due to differences in the quantity of functional service rendered, and how much to differences in the cost per unit of service.

These steps in the procedure follow the normal sequence of the cost accountant's activity in every case where he attempts to aid the management in planning and control. He undertakes first, an examination of past results, to provide a basis for future estimates; second, the formulation of definite estimates, both in the aggregate and on a unit basis; third, the comparison of actual with estimated results, to place responsibility for variances and to furnish an improved basis for planning and control in the next future period.

The general principles set forth in the preceding comments will probably be made clearer by reference to an illustration of how they apply in a specific case. This illustration is furnished by means of a series of related statements appearing as Figures 1 to 5 in these pages. The first (Figure 1) represents the analysis of past results; the next two (Figures 2 and 3) show how the budget for the next period will look; the last two (Figures 4 and 5) show the final comparison of budgeted and actual performance after the close of the period.

The company selected for the illustration is a manufacturer of shoes. Its output is sold to retail dealers, through the efforts of traveling salesmen, supplemented by direct mail solicitation. We may assume that it has had in operation an old style simple classification of its selling expenses according to object of expenditure, but that at the end of the year 1928 it has decided to develop standards for the control of its selling activities and to utilize these

in preparing that part of its budget for the year 1929. For clarity, the illustrative figures are presented for the company as a whole and for the year as a whole, though it will be understood that in practice the analysis would probably be made first by individual salesmen and sales territories, and by individual periods shorter than a full year in length.

Attention should be given first to the statement in Figure 1. This covers actual expenses of the year 1928, insofar as they relate to distribution functions. In the column making up the left-hand half of the statement the account captions and expense totals appear as taken from the books.

It will be noted that the list includes not only the costs of advertising, selling, and delivery, but also certain items from what is usually termed the "administrative" group, such as the salaries of officers and clerical employees responsible for handling of orders, extending credits, keeping customers' accounts, etc., also the cost of stationery, printing, and postage used by them, their telephone calls and telegrams, maintenance and depreciation of the office equipment which they use, and other general expenses incident to their operations. One of the first important departures from old style accounting practice in the matter of selling expenses comes in the analysis of costs of this type as part of the expense of the distribution function.

The initial step in the handling of these 1928 expense figures (covering advertising, selling, shipping, delivery, and administration) is to regroup them according to the functions actually performed. This would probably be done in practice by setting up a columnar analysis sheet, with a separate column for each distinguishable activity, and by spreading the expense totals across the sheet in such a manner as to assemble in each column all the costs relating to that activity. Space limitations make it impossible to illustrate this columnar sheet, and Figure 1 has therefore been arranged to show not the entire distribution, but (on the right hand side) the "column totals" which would be the result of the spreading and reaccumulation of the figures.

These amounts on the right hand side represent, then, a regrouping of the expenses according to the more important divisions of distribution activity, the figures representing the totals being numbered according to the sub-functions recognizable in

each division. Similar numbers appear against the expense account totals shown on the left hand side of the sheet; these indicate in a general way how the expenses have had to be redistributed to place them on a functional basis.

CLASSIFICATION OF DISTRIBUTION EXPENSES (1928 ACTUAL)

By Object of Expenditure			*By Function*	
Advertising & Selling			*Advertising*	
Advertising Space	$ 25,710	(1)	(1) Space Advertising	$ 38,495
Art Work, Copy, etc.	16,137	(1, 2, 3)	(2) Direct Mail	16,422
Adv. Dept. Salaries	20,342	(1, 2, 3, 4)	(3) Dealer's Helps	10,117
Salesforce Salaries	66,590	(5)	(4) Supervision	7,220
Sales Travel Expense	42,303	(6)		$ 72,254
Samples, Equ. etc.	5,225	(7)		
Sales Off. Salaries	16,274	(8)	*Selling*	
Printing	4,905	(2, 3, 8)	(5) Salesforce Compensation	$ 66,590
Stationery	3,766	(2, 4, 8, 12)	(6) Salesforce Travel	42,303
Postage	2,122	(2, 3, 8)	(7) Samples, etc.	5,225
Tele. & Teleg.	2,280	(2, 8)	(8) Supervision	21,614
Other Sell. Exp.	2,157	(8)		$135,732
	$207,811			
Shipping & Delivery			*Handling & Delivery*	
Ship. Dept. Labor	$ 17,086	(9, 10, 11)	(9) Filling Orders	$ 5,787
Packing Supplies	10,633	(10)	(10) Packing & Loading	18,813
Auto & Garage	2,727	(11)	(11) Delivery to Station	5,795
Frt. Expr. Par. Post	63,214	(14)	(12) Prepar. Inv. & Ship. Docum.	7,914
	$93,660		(13) Pricing, Extdg. Footing Inv.	4,676
			(14) Frt. Expr. Par. Post	63,214
			(15) Traffic, Claims	5,009
				$111,208
Administrative			*Credit & Collection*	
Officers' Salaries	$ 24,000	(20)	(16) Posting Invoices	$ 2,923
Clerical Salaries	24,550	(12, 13, 15, 16, 17, 18, 19, 21)	(17) Posting Cash	2,086
Staty. & Printing	5,215	(12, 18)	(18) Stmts. Trial Balances, etc.	5,774
Postage	1,311	(12, 18)	(19) Credit Invest. Coll. Ex. etc.	8,533
Tele. & Teleg.	1,778	(15, 19)		$ 19,316
Maint. Off. Equipt.	1,241	(12, 15, 18, 19, 20)	*Administrative*	
Deprec. Off. Equipt.	2,210	(12, 15, 18, 19, 20)	(20) Sales Management	$ 24,000
General Expense	3,638	(12, 15, 19, 20)	(21) Anal. & Reports	2,904
	$ 63,943			$ 26,904
Total Distr. Expense	$365,414		Total Distr. Expense	$365,414

FIGURE 1.

For example, it will be observed that against the expense account total "Advertising Department Salaries.....$20,342" appear the numbers 1, 2, 3, and 4. This indicates that the salaries paid in this department have been found to be connected partly with the cost of space advertising (column 1), direct mail advertising (column 2), dealers' helps (column 3), and advertising supervision (column 4). Similarly, the expense account total in the

same group listed as "Stationery..... $3,766" represents the cost of stationery used partly on direct mail advertising (column 2), advertising supervision (column 4), general sales supervision (column 8), and the cost of preparing invoices and shipping documents (column 12). Conversely, it can be discovered how the functional totals at the right hand side of the page have been made up: the cost listed as "Space Advertising..... $38,495" is, for example, made up in part of the actual outlay for advertising space, in part of the cost of art work, copy-writing, etc., and in part of the salaries of advertising department employees.

The next step in the procedure is the selection of a unit of functional service for each of the functional expense groups arrived at as a result of this analysis. These units should be chosen, of course, to represent as nearly as possible the factors in relation to which the individual functional costs tend to vary. As a matter of practice, the selection of functions for costing purposes is often influenced by the sort of units of measurement, or "factors of variability", which seem to offer some possibility of practical use.

Particular attention should be given to this problem. The functions may even be designated in terms of the unit of measurement of functional service which will be employed. A good example is furnished by a street railway company which uses this basis for classifying its operating expenses. Certain of its costs, such as maintenance of roadway and structures, are known to vary with the number of miles of track operated; another group of costs, including power, varies with the number of car miles operated; another group of costs varies with the number of car hours operated; another with the number of passengers carried, etc. Knowing its unit costs in each of these divisions and knowing in advance for any period about how many miles of track, how many car miles, and how many car hours will be operated, how many passengers will be carried, etc., the railway company can build up a budget which is *fixed* as to its general financial terms, but *flexible* as to its operating provisions and the control which it provides over individual features of the operating results.

The shoe company in our example must select similar factors for analyzing and measuring the results of its selling activities. These may be many or few, depending on conditions and on the

degree of refinement which the company wishes to introduce into its calculations. The same unit or factor may be used for several functional expenses, and these expenses may not even fall in the same general group. It is important, however, that the units selected shall have a direct relationship to changes in costs which will take place under varying conditions, and also that they shall be sufficiently simple and easy of determination so that their application will be economical and practical.

It will be assumed that after careful study of all the conditions, this shoe company has selected for use nine units of measurement for the various functional services which are recognized in Figure 1. Several of these units, or factors, are found to apply satisfactorily to more than one activity. In Figure 2, therefore, the company's expenses are grouped according to these units, or factors, and in the first set of three columns, the results for the year 1928 are again set down, this time on both an aggregate and a unit cost basis.

It should be remembered in studying this example that the particular units selected for measurement are "illustrative" and not necessarily applicable in any specific case other than the one assumed here. For purposes of this illustration it is postulated, for example, that the expense of direct mail advertising is roughly proportionate to the number of solicitations by mail; that is, if more (or fewer) pieces of mail advertising are sent out, this cost will be proportionately increased (or reduced). The company may then formulate a plan calling for a certain number of solicitations at a certain unit cost per solicitation. At the end of the year the management may check the actual expenditure against the estimated cost to determine whether there has been any variance from the anticipated total, and if so whether it is due to a difference in the number of solicitations actually made, or to a difference in the cost for each solicitation, or to both.

Similar reasoning applies to the other items. The cost of salesmen's calls is not influenced by the amount of business done or the amount of profit obtained, but by the number of sales calls made and the cost of each call. The anticipated expense may therefore be expressed as the cost of so many calls at so much per call. The cost of samples, equipment, etc., may be treated similarly. On the other hand, the traveling expense of salesmen is more closely

ANALYSIS OF DISTRIBUTION EXPENSES ACCORDING TO UNITS OF FUNCTIONAL SERVICE

	Actual—1928			*Budget—1929*		
	Total Cost	*No. Units*	*Unit Cost*	*No. Units*	*Unit Cost*	*Total Cost*
No. Mail Solicitations						
(2) Direct Mail Advtg.	$ 16,422	12,320	1.33	10,000	1.25	$ 12,500
No. Salesmen's Calls						
(5) Salesforce Compens.	66,590	6,036	11.03	5,000	12.50	62,500
(7) Salesforce Equipt...	5,225	6,036	.87	5,000	1.00	5,000
No. Days Travel						
(6) Salesforce Travel...	42,303	4,451	9.50	4,200	9.00	37,800
No. Accounts Sold						
(3) Dealer's Helps.....	10,117	2,428	4.17	2,000	4.00	8,000
(18) Statements, etc.	5,774	2,428	2.38	2,000	2.50	5,000
(19) Credit & Collect....	8,533	2,428	3.51	2,000	3.50	7,000
No. Orders Taken						
(12) Prepar. Invoices....	7,914	18,662	.43	15,000	.30	4,500
(16) Posting Invoices...	2,923	18,662	.16	15,000	.15	2,250
(15) Traffic, Claims.....	5,009	18,662	.27	15,000	.25	3,750
No. Items (Lines)						
(9) Filling Orders	5,787	70,931	.08	75,000	.08	6,000
(13) Pricing, Ext. etc...	4,676	70,931	.07	75,000	.07	5,250
(21) Sales Analyses	2,904	70,931	.04	75,000	.03	2,250
No. Units Product						
(10) Packing & Loading.	18,813	545,355	.03	600,000	.03	18,000
(11) Delivery to Station..	5,795	545,355	.01	600,000	.01	6,000
Wtd. Shipt. Mileage						
(14) Frt. Expr. Par. Post	63,214	283,526*	.22	300,000*	.22	66,000
No. Cash Collections						
(17) Posting Cash	2,086	12,720	.16	10,000	.15	1,500
Fixed Standard						
(1) Advtg. Space	38,495	....	..	....	..	40,000
(4) Advtg. Supervision..	7,220	....	..	....	..	7,000
(8) Sales Supervision...	21,614	....	..	....	..	22,000
(20) General Management	24,000	....	..	....	..	24,000
Total Expense	$365,414					$346,300

(*No. of thousand-weight miles)

FIGURE 2.

related to the number of days spent on the road than to the number of calls made, and it has therefore been measured separately

The cost of salesforce compensation and traveling expense could probably be grouped and measured according to either of the two factors just mentioned; that is, as so much per sales call or so much per day. For illustration, however, different factors have been used for the two divisions of expense. In practice the decision on a ques-

tion of this type will be made in line with what is practical, useful, and necessary for the individual item involved.

Particular attention should be given to the costs incident to the number of customers sold, the number of orders taken, the number of items on the orders, and the number of units of product sold. Most companies in the past have grossly neglected the influence of these factors on distribution costs. Many companies do not yet realize that, from the distribution cost viewpoint, the sale of a given quantity of product in a few large orders to a few big customers is quite a different thing from the sale of the same quantity of product to a large number of small customers buying in small individual lots. Wholesalers, particularly, have been faced in recent years with steadily mounting costs for packing, loading, shipping, clerical work on bills and accounts receivable, and related services, due to the tendency toward so-called "hand-to-mouth" buying. Where any or all of the costs just mentioned are of significant amount, this feature deserves close attention in the planning of a sales program.

With the facts of the 1928 results before its management, this shoe company is now in a position to plan its selling activities for 1929 in terms of the actual activities which will be required for the sale and distribution of its product and the costs which are likely to result from these activities. This gives rise to the budget shown in the right hand columns of Figure 2. Each activity is budgeted in terms of the quantity of functional service which it is expected will be required, and also in terms of the cost per unit of such service. The result is a selling cost budget *fixed* as to its total amount but *flexible* in the sense that each of its divisions can be finally analyzed and judged independently of any others.

Close examination of the 1929 budget will reveal much as to the selling policies adopted by the company. It will be noted, for example, that the company expects to send out fewer pieces of direct mail advertising, and to spend less per piece, than in 1928. Salesmen will make fewer calls; probably fewer men will be employed and they will either cultivate a smaller number of customers or visit the same list of customers somewhat less frequently. It is planned, however, that a larger amount of time shall be spent with each customer. On the other hand the number of days on the road will be reduced, and the salesmen will be asked to pare down their per diem expenses to a slight degree.

The company expects to sell to fewer customers, probably eliminating some now considered unprofitable; to take fewer orders, but to make these orders produce a larger number of items and units of product. On the whole, this means that the salesmen will be asked to cultivate a smaller number of customers more intensively, and to get them to buy more items from the line and in larger individual orders than in the past.

BUDGETED 1929 PROFIT AND LOSS STATEMENT
COMPARED WITH ACTUAL RESULTS FOR 1928

	Actual—1928			*Budget*—1929		
	Total	*Pct.*	*Per Unit*	*Total*	*Pct.*	*Per Unit*
Sales	$2,235,956	100.0	$4.10	$2,400,000	100.0	$4.00
Production Cost	1,625,158	72.6	2.98	1,680,000	70.0	2.80
Gross Margin	$ 610,798	27.0	$1.12	$ 720,000	30.0	$1.20
Distribution Cost	365,414	16.4	.67	346,300	14.4	.58
Net Profit	$ 245,384	11.0	$ .45	$ 373,700	15.6	$ .62

FIGURE 3.

The composite effect of these and other features of the general budget program is revealed in the brief summary given as Figure 3. Here the actual results for 1928 and the anticipated results for 1929 are set out in terms of what they mean in the way of a final statement of profit and loss. It will be observed that in 1929 the company expects to sell slightly more units of product at a slightly lower sales value per unit; to reduce production costs per unit by more than the expected reduction in selling prices; and to reduce distribution costs both in the aggregate and per unit of sales. The hoped for result of these plans is an increase of about fifty per cent in total profits, though the improvement in profits per unit and profits per $100 of sales is at a somewhat lower rate.

The program is now complete and operations proceed. The months of 1929 go by. The budget shown in the illustration was for the entire year, but presumably it was built up by months, or at least by quarters, so that the management may have frequent information on how closely actual results correspond with those anticipated when the budget was framed. Thus comparative statements of budgeted and actual performance will be prepared at frequent intervals, and plans will be revised or operations brought into line with the standards set.

For economy in this illustration, however, the intermediate steps have been disregarded and attention will be given only to the final

comparative statements for the year as a whole. These appear in Figures 4 and 5. From the data which these statements contain the management may determine how far the actual performance exceeded (or fell short of) the estimates made at the beginning of the year, and also (most important) what factors brought about the variances and produced results different from those contemplated when the program was undertaken.

ACTUAL PROFIT AND LOSS STATEMENT FOR 1929
COMPARED WITH BUDGET

	Budget—1929			Actual—1929		
	Total	*Pct.*	*Per Unit*	*Total*	*Pct.*	*Per Unit*
Sales	$2,400,000	100.0	$4.00	$2,216,958	100.0	$3.80
Production Cost	1,680,000	70.0	2.80	1,616,046	72.9	2.77
Gross Margin	$ 720,000	30.0	$1.20	$ 600,912	27.1	$1.03
Distribution Cost	346,300	14.4	.58	368,227	16.6	.63
Net Profit	$ 373,700	15.6	$ .62	$ 232,685	10.5	$ .40

Figure 4.

Attention may be given first to the condensed statement of results as a whole, shown in Figure 4. It will be observed at once that the company fell far short of its expectations in the matter of total profits. These amounted to only $232,685 against the $373,700 anticipated. What was responsible for this disturbing variance from the budgeted results? The answer will be found partly in the condensed statement and partly in the detailed statement of distribution costs (Figure 5).

In the first place, total volume was less than anticipated, by about three per cent in number of units, but by nearly eight per cent in dollars. The greater decrease in the dollar volume is seen at once to be due to the price per unit of sales, which was lower than anticipated by 20 cents. The price of the shoes sold averaged $3.80 per pair instead of $4.00. This unexpected decline of twenty cents per pair in the realized selling price alone resulted in a reduction of over $116,000 in the total sales. The effect of this variance on other features of the results is noteworthy.

Production costs per pair were slightly less than anticipated, but the saving here falls far short of making up the loss in the unit selling price. As a consequence, it will be observed that production costs were 72.9 per cent of sales, instead of 70.0 per cent as budgeted. The effect of the two factors in combination is a decrease in the gross margin of 17 cents per pair, or approximately $120,000 in total.

It is the expenses of distribution, however, which are the main object of interest in this discussion. These are given in detail in Figure 5 and are supported with enough analytical data to make their significance reasonably clear. A quick glance at the summary of results in Figure 4 has already shown that the actual expenses exceeded the estimate by some $22,000, and that they amounted to 63 cents per pair instead of an expected 58 cents per pair. What brought about this difference?

Under the old-style method of attack on a problem of this kind, the management would probably have found fault with the sales department for exceeding its budget, and the sales department would have responded by pointing out that volume was increased over the previous year and expenses per unit were reduced. Neither the sales department nor the general management would have had any clear idea as to whether the results were better or worse than they should have been under the conditions existing, nor would they have been in any better position to forecast more accurately for the next following period. Under the plan suggested here, however, it is possible to tell something about the conditions and the extent to which each factor has influenced the results.

The columns in Figure 5 show, first, the number of units of functional service, budgeted and actual; next, the total cost of each service, budgeted and actual; finally, the "allowed cost" of the actual units of service at their budgeted unit cost, and an allocation of the excess or saving as between the amount due to changes in the number of units of service and the amount due to changes in the cost per service unit. This gives a fairly complete picture of what happened and why.

The first item on the list, for example, is the cost of direct mail advertising. The budget called for 10,000 pieces of mail matter to be sent out; the actual number sent was 10,643. The budgeted cost was $12,500; the actual cost, $15,284. If the 10,643 pieces actually mailed had cost the anticipated amount of $1.25 per piece (see Figure 2), the total cost would have been $13,304; this is the "allowed cost" for the amount of service actually rendered. A calculation will show that the actual cost per unit for each piece of advertising matter mailed was $1.43. It appears, then, that the excess of actual over budgeted cost "($2,784) is accounted for in this way; excess due to greater number of units of mail advertising matter, $804; excess due to greater cost per unit of mail matter, $1,980.

COMPARISON OF BUDGET AND ACTUAL FOR 1929, WITH EXPLANATION OF VARIANCES

	Units of Service		*Total Cost*		*Actual Units*	*Excess or Saving*	
	Budget 1929	*Actual* 1929	*Budget* 1929	*Actual* 1929	*at Budget Unit Cost*	*Due to Units*	*Due to Cost*
No. Mail Solicitations	10,000	10,643					
(2) Direct Mail Advertising			$12,500	$15,284	$13,304	+$804	+$1,980
No. Salesmen's Calls	5,000	5,522					
(5) Sales Force Compensation			62,500	69,403	69,025	+6,525	+378
(7) Sales Force Equpt. Expense			5,000	5,825	5,522	+522	+303
No. Days Travel	4,200	4,518					
(6) Sales Force Travel Expense			37,800	41,315	40,662	+2,862	+653
No. Accounts Sold	2,000	2,211					
(3) Dealer's Helps			8,000	9,066	8,844	+844	+242
(18) Statements, etc.			5,000	5,733	5,528	+528	+205
(19) Credit and Collection			7,000	6,695	7,739	+739	—1,044
No. Orders Taken	15,000	18,417					
(12) Preparing Invoices			4,500	5,174	5,525	+1,025	—351
(16) Posting Invoices			2,250	2,423	2,763	+513	—340
(15) Traffic, Claims			3,750	3,602	4,604	+854	—1,002
No. Items (Lines)	75,000	80,665					
(9) Filling Orders			6,000	7,125	6,453	+453	+672
(13) Pricing, Extension, etc			5,250	5,784	5,647	+397	+137
(21) Sales Analyses			2,250	2,568	2,420	+170	+148
No. Units Product	600,000	583,410					
(10) Packing and Loading			18,000	17,744	17,502	—498	+242
(11) Delivery to Station			6,000	5,812	5,834	—166	—22
Wtd. Shipt. Mileage	300,000	302,700					
(14) Freight, Express, Parcel Post			66,000	67,747	66,594	+594	+1,153
No. Cash Collections	10,000	11,125					
(17) Posting Cash			1,500	1,712	1,669	+169	+43
Fixed Standard							
(1) Advertising Space			40,000	41,300	40,000	.....	+1,300
(4) Advertising Supervision			7,000	7,115	7,000	.....	+115
(8) Sales Supervision			22,000	22,780	22,000	.....	+780
(20) General Management			24,000	24,000	24,000	.....	.....
Total Expense			$346,300	$368,227	$362,635	+$16,335	+$5,592

FIGURE 5.

The management can now fix the responsibility for this excess cost pretty definitely. Either there was a change in the policy with regard to the number of solicitations to be made, or the advertising department exceeded its permitted quota. Some one decided what sort of advertising material should be used in this campaign, and thus was responsible for its average unit cost. There may be no blame attached to the performance; the result could easily be due to the changes in policy agreed on by all concerned, or to inevitable errors in the original estimates. In any case, the exact nature of the discrepancies is now clear.

It is not necessary to examine all the items in detail, but certain features of the results are striking enough to attract the attention, It is clear that the number of sales calls and the number of days of sales travel were both substantially in excess of what was originally planned; these two items account for about $11,000 of the excess cost. It is apparent that sales were made to a larger number of dealers than was expected, and that both the number of orders taken and the number of items on these orders exceeded expectations.

It was the size of the individual item that proved disappointing; instead of selling 75,000 items totaling 600,000 units of product (which would have been 8 units per item), the sales force actually sold 80,665 items, totaling 583,410 units (which is 7.2 units per item). Since the number of calls, number of days of travel, number of customers, number of orders, and number of items all tend toward increasing distribution cost, it will be clear that increases in all of these factors, accompanied by a decrease in the final volume produced, must inevitably bring about a less favorable expense showing than was anticipated in the original budget.

The difference in connection with the expense of handling orders is interesting. This is a cost for which the sales department and the accounting department are jointly responsible—the sales department to the extent of the number of orders taken, and the accounting department to the extent of the cost per order. It will be seen from the analysis that the excess cost allowable due to the larger number of orders handled has been offset through savings in the cost per order. On the other hand, packing and loading expenses, which should have declined with the smaller number of units of product handled, showed less of a saving than might have been made, because of the higher cost per unit packed and loaded.

FIGURE 5.

It should be noted in this connection that a flat allowance for the cost per unit of each functional service is not entirely equitable, since these distribution costs, like almost all other costs, tend to be influenced in some degree by volume. It is reasonable to expect, for example, that if more orders are taken, the cost per order of putting the documents through the accounting department will be somewhat less. Thus the previously mentioned saving in this connection may be no more than what would naturally be obtained under the circumstances.

Probably a sliding scale of unit costs should be set up for each function, and the budget comparisons in Figure 5 should be made on that basis instead of on the less accurate one here employed. The illustration, however, will serve to indicate the general characteristics of the method. Further refinements would be worked out in actual practice.

The final line in Figure 5 summarizes the effect of all the individual changes. The increase in total selling expenses is seen to be due about 75 per cent to the greater number of units of functional service required in carrying out the various distribution activities, and about 25 per cent to the greater cost per unit of service. With all the particulars available, the influence of the various factors becomes clear. There is no longer any occasion for meaningless bickering between the general management, the sales department, and the accounting department. The concern is in a position to forecast its operations for the next period more intelligently and to realize what sort of remedies must be applied to correct conditions which have had an unfavorable effect on results.

By way of summary, the following suggestions may be appropriate:

(1) Effective control of costs requires the development of standards against which results may be measured—and distribution costs are no exception to the general rule in this respect;

(2) While a composite fixed standard for the enterprise as a whole is necessary, results of individual operations can be better interpreted through the use of supplementary flexible standards of the sort described in this paper;

(3) A flexible standard can be developed most satisfactorily through recognition of the fact that costs are normally the product of a given quantity of material or service times the cost per unit of such material or service;

(4) If the costs of distribution are analyzed according to functions performed, it is usually possible to determine appropriate units of functional service, and to develop standards for future operations based on these unit costs and on the quantity of the functional service likely to be required;

(5) A comparison of actual and anticipated performance, made at the end of a budget period, will be illuminating and effective if it is so prepared that variances between actual and anticipated can be accounted for in terms of number of units of service and cost per unit—i. e., through a standard which is sufficiently flexible to give due recognition to both factors.

There is much in the method suggested here which is applicable both to production and distribution activities. In the factory, analyses of this type are coming to be depended on more and more for intelligible explanation of what has taken place. Through the use of methods worked out along these general lines, management should be able to bring about equally effective control over distribution activities and their resultant costs.

SUGGESTED BIBLIOGRAPHY

N. A. C. A. Publications:

Fundamentals of Business Management—Sales. Bulletin I, March 15, 1924, pp. 3-7.

Allocation of Selling and Administrative Expenses to Units Sold. Bulletin I, Jan. 15, 1929.

Setting Up the Records to Fit the Sales and General Organization. 1929 Year Book. pp. 97-142.

The Use of Sales Incentives to Control Sales and Profits. N. A. C. A. Official Publications. Sept. 15, 1930. Vol. XII.

Allocation of Selling and Administrative Costs to the Article of Sale. N. A. C. A. Official Publications. Vol. XII, Oct. 15, 1930.

Cost Analysis for Wholesale Operations with Special Reference to Wholesale Druggists. Official Publications. Vol. XII, Dec. 1, 1930.

Analysis and Distribution of Sales Distribution Costs, The. Bulletin I, Feb. 15, 1928.

Cost Accounting for Distribution in Retail Grocery Stores. Bulletin I, Oct. 1, 1929.

Cost of Distribution, The. Bulletin I, Oct. 1, 1925.

Distribution of Cost Analysis—Methods and Examples. Bulletin I, June 1, 1930.

Distribution Costs. 1926 Year Book.. pp. 195-234.

Distribution of Selling and Administrative Expenses. Bulletin II, Oct. 1, 1928. pp. 126-8.

Distribution of Advertising Costs to Unit Costs. Bulletin II, Oct. 1, 1928. pp. 126-8.

Factors Determining a Sales Policy. Bulletin II, Dec. 1, 1924. pp. 1516-20.

How to Reduce the Cost of Selling. Bulletin I, Dec. 1, 1925.

Manufacturer's Marketing Cost, The. Bulletin I, Nov. 15, 1929.

Measurement and Control of Selling and Distribution Costs. Bulletin I, Mar. 1, 1929.

New Technique in Selling and Administrative Cost Accounting. Bulletin I, Oct. 1, 1928.

Reduction of the Cost of Sales. Bulletin I, Mar. 15, 1924. pp. 7-10.

Relation Between Sales Promotion and Accounting. Bulletin I, Apr. 15, 1928.

Sales and Administrative Costs. 1922 Year Book. pp. 103-54.

Sales Cost Accounting. Bulletin I, Nov. 1, 1928.

Selling and Administrative Costs, Their Definition, Analysis and Distribution. 1924 Year Book. pp. 275-299.

Treatment of Distribution Costs, A. Bulletin II, Jan. 15, 1928. pp. 546-51.

Foreign Market Analysis and Research. Bulletin II, Nov. 15, 1928. pp. 327-32.

General:

Analyzing Wholesale Distribution Costs. Sept., 1927. 12 pp. U. S. Dept. of Commerce, Washington, D. C.

Method of Cost Allocation in Distribution in Accounting as Developed and Used by the Domestic Commerce Division. 11 pp. U. S. Dept. of Commerce.

Distribution Costs. Vol. XV, No. 1, pp. 31-38. Bulletin of the Taylor Society, 29 W. 39th Street, New York, N. Y.

Hand-to-Mouth-Buying. The Brookings Institution, Washington, D. C. By Lyon, Leverett S.

An Index to Distribution Research. Dec., 1929. 47 pp. Association of National Advertisers, 420 Lexington Avenue, New York City.

Principles of Merchandising. McGraw-Hill Book Company, 370 Seventh Avenue, New York City.

The Sales Budget. Business Leaflets, No. 3. 11 pp. Metropolitan Life Insurance Company, Policyholder Service Bureau.

Budgetary Control of Distribution. 1929 xvi, 99 pp. Harper & Bros., 29 E. 33d Street, New York.

Reports of Committee I-VI of National Distribution Conference, Chamber of Commerce, Washington, D. C.

American Management Association Sales Executives Series. 1925.

Market Research Agencies. A Guide to Publications and Activities Relating to Domestic Marketing 1926 and 1927 Editions. U. S. Dept. of Commerce.

Marketing and Distribution. Report No. 408, Part IV, of the joint commission of agricultural inquiry. Government Printing Office, Washington, D. C.

A Market Research Bibliography. 1931. 75 pp. U. of Illinois, Bureau of Business Research. Urbana, Ill.